

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number
WO 2005/014724 A1

(51) International Patent Classification⁷: **C09B 47/06**,
47/26, 67/22, 11/00

(21) International Application Number:
PCT/GB2004/002854

(22) International Filing Date: 2 July 2004 (02.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0316852.3 18 July 2003 (18.07.2003) GB
0317414.1 25 July 2003 (25.07.2003) GB

(71) Applicant (for all designated States except US): **AVECIA LIMITED** [GB/GB]; Hexagon House, Blackley, Manchester M9 8ZS (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **PATEL, Prakash** [GB/GB]; P.O. Box 42, Hexagon House, Blackley, Manchester M9 8ZS (GB).

(74) Agents: **MORPETH, Fraser, Forrest et al.**; AVECIA Limited, Intellectual Property Group, PO Box 42, Hexagon House, Blackley, Manchester M9 8ZS (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

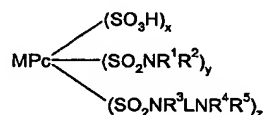
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

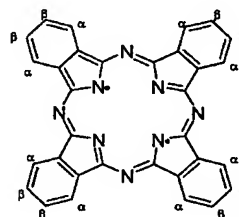
— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **PHthalOCYANINES AND THEIR USE IN INK-JET PRINTERS**



(1)



(a)

(57) Abstract: A mixture of phthalocyanine dyes of Formula (1) and salts thereof: Formula (1) wherein: M is Cu or Ni; Pc represents a phthalocyanine nucleus of formula (a); Formula (a) L is optionally substituted C₁₋₂₀ alkylene, alkenylene or alkynylene, optionally interrupted by -O-, -NH- or -S-; R¹, R², R³ and R⁴ independently are H or optionally substituted C₁₋₄alkyl; R⁵ is H or an optionally substituted hydrocarbyl; or R⁴ and R⁵ together with the nitrogen atom to which they are attached represent an optionally substituted aliphatic or aromatic ring system; x is 0.1 to 3.8; y is 0.1 to 3.8; z is 0.1 to 3.8; the sum of (x+y+z) is 4; and the substituents, represented by x, y and z, are attached only to a n-position on the phthalocyanine ring. Also novel compositions and inks, ink-jet printing processes, printed images and cartridges.